

IN THE CLAIMS:

**Please cancel claims 1-12 without prejudice or disclaimer to the subject matter therein.**

**Please add new claims 13-18 as follows.**

13. A signal transmission system comprising a transmission apparatus and a receiving apparatus, said transmission apparatus comprising:

- a mapper operable to map a data stream to produce a mapped signal;  
- a selector operable to select between tap coefficients for a VSB modulation mode and tap coefficients for a QAM modulation mode;

- first and second FIR filters operable to filter the mapped signal to produce a VSB modulated signal when said selector selects the tap coefficients for the VSB modulation mode and to produce a QAM modulated signal when said selector selects the tap coefficients for the QAM modulation mode; and

- a transmitter operable to transmit at least one of the VSB modulated signal and the QAM modulated signal; and

said receiving apparatus comprising:

- a receiver operable to receive a transmitted signal;  
- a selector operable to select between tap coefficients for a VSB demodulation mode and tap coefficients for a QAM demodulation mode;

- first and second FIR filters operable to filter, when said selector selects the tap coefficients for the VSB demodulation mode, the VSB modulated signal to produce a mapped signal of the VSB modulated signal, and to filter, when said selector selects the tap coefficients for the QAM demodulation mode, the QAM modulated signal to produce a mapped signal of the QAM modulated signal; and

- a de-mapper operable to de-map at least one of the mapped signal of the VSB modulated signal and the mapped signal of the QAM modulated signal to produce the data stream.

14. A signal transmission apparatus comprising:

- a mapper operable to map a data stream to produce a mapped signal;

- a selector operable to select between tap coefficients for a VSB modulation mode and tap coefficients for a QAM modulation mode;

- first and second FIR filters operable to filter the mapped signal to produce a VSB modulated signal when said selector selects the tap coefficients for the VSB modulation mode and to produce a QAM modulated signal when said selector selects the tap coefficients for the QAM modulation mode; and

- a transmitter operable to transmit at least one of the VSB modulated signal and the QAM modulated signal.

15. A signal receiving apparatus comprising:

- a receiver operable to receive a signal of at least one of a VSB modulated signal and a QAM modulated signal;

- a selector operable to select between tap coefficients for a VSB demodulation mode and tap coefficients for a QAM demodulation mode;

- first and second FIR filters operable to filter, when said selector selects the tap coefficients for the VSB demodulation mode, the VSB modulated signal to produce a mapped signal of the VSB modulated signal, and to filter, when said selector selects the tap coefficients for the QAM demodulation mode, the QAM modulated signal to produce a mapped signal of the QAM modulated signal; and

- a de-mapper operable to de-map the mapped signal of VSB modulated signal to produce a data stream of the VSB modulated signal, and de-map the mapped signal of the QAM modulated signal to produce a data stream of the QAM modulated signal.

16. A signal transmission and receiving method comprising a transmission method and a receiving method,

said transmission method comprising:

- mapping a data stream to produce a mapped signal;

- selecting between tap coefficients for a VSB modulation mode and tap coefficients for a QAM modulation mode;

- filtering, by first and second FIR filters, the mapped signal to produce a VSB modulated signal when the tap coefficients for the VSB modulation mode are selected, and to produce a QAM modulated signal when the tap coefficients for the QAM modulation mode are selected; and

- transmitting the modulated signal; and

said receiving method comprising:

- receiving a transmitted signal;

- selecting between tap coefficients for a VSB demodulation mode and tap coefficients for a QAM demodulation mode;

- filtering, by first and second FIR filters, when the tap coefficients for the VSB demodulation mode are selected, the VSB modulated signal to produce a mapped signal of the VSB modulated signal, and filtering, when the tap coefficients for the QAM demodulation mode are selected, the QAM modulated signal to produce a mapped signal of the QAM modulated signal; and

- de-mapping the mapped signal to produce the data stream of the VSB modulated signal or the data stream of the QAM modulated signal.

17. A signal transmission method comprising:

- mapping a data stream to produce a mapped signal;

- selecting between tap coefficients for a VSB modulation mode and tap coefficients for a QAM modulation mode;

- filtering, by first and second FIR filters, the mapped signal to produce a VSB modulated signal when the tap coefficients for the VSB modulation mode are selected, and to produce a QAM modulated signal when the tap coefficients for the QAM modulation mode are selected; and

- transmitting at least one of the VSB modulated signal and the QAM modulated signal.

18. A signal receiving method comprising:

- receiving a signal of at least one of a VSB modulated signal and a QAM modulated signal;

- selecting between tap coefficients for a VSB demodulation mode and tap coefficients for a QAM demodulation mode;

- filtering, by first and second FIR filters, when the tap coefficients for the VSB demodulation mode are selected, the VSB modulated signal to produce a mapped signal of the VSB modulated signal, and filtering, when the tap coefficients for the QAM demodulation mode are selected, the QAM modulated signal to produce a mapped signal of the QAM modulated signal; and

- de-mapping the mapped signal of the VSB modulated signal to produce a data stream of the VSB modulated signal, and de-mapping the mapped signal of the QAM modulated signal to produce a data stream of the QAM modulated signal.